

CLAIMS

1. Cellular radiotelephony signal of the type including:

- a two-directional symmetric principal channel including a principal uplink channel and a principal downlink channel, particularly for low or medium speed transmission of signalling and control data and information;
- 5 - at least one supplementary channel assigned to the downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time / frequency space, and with a sub-frame type structure, characterised in that the beginning of at least one sub-frame of the supplementary
- 10 channel is offset by a time interval with a determined duration not equal to zero ( $\Delta t$ ) with respect to a determined time ( $t_0$ ) on the principal channel, so as to enable synchronisation of the supplementary channel at sub-frame level in a terminal, by detection of said determined time ( $t_0$ ) and by adding said time interval ( $\Delta t$ ).

2. Cellular radiotelephony signal according to claim 1, the structure of the  
15 principal channel being organised in frames, characterised in that the determined time ( $t_0$ ) on the principal channel is a beginning of a frame of the principal channel.

3. Cellular radiotelephony signal according to claim 2, characterised in that the beginning of each frame of the principal channel forms a determined time ( $t_0$ ).

20 4. Cellular radiotelephony signal according to claim 2, characterised in that the beginning of only some frame(s) of the principal channel called the synchronisation frames forms a determined time ( $t_0$ ).

5. Cellular radiotelephony signal according to claim 4, characterised in that the principal channel and / or the supplementary channel transmit(s) identification  
25 information of at least one synchronisation frame.

6. Cellular radiotelephony signal according to claim 1, the principal channel having a structure organised in frames each including a plurality of slots, characterised in that the determined time ( $t_0$ ) on the principal channel is a beginning of a slot of the principal channel.

7. Cellular radiotelephony signal according to claim 6, characterised in that the beginning of only some slot(s) of the principal channel called the synchronisation slots, forms a determined time ( $t_0$ ).

8. Cellular radiotelephony signal according to claim 7, characterised in that 5 the principal channel and / or the supplementary channel transmit(s) identification information of at least one synchronisation slot.

9. Cellular radiotelephony signal according to any one of claims 1 to 8, the principal channel having a structure organised in frames each comprising a plurality of slots, each slot comprising a plurality of signal units (chips), 10 characterised in that the determined duration of said time interval ( $\Delta t$ ) is equal to  $k$  times the duration of a signal unit, where  $k$  is an integer number.

10. Cellular radiotelephony signal according to claim 9, characterised in that  $k$  is equal to 256.

11. Cellular radiotelephony signal according to any one of claims 1 to 10, 15 characterised in that the principal channel and / or the supplementary channel transmit(s) information about said duration of the time interval ( $\Delta t$ ).

12. Cellular radiotelephony signal according to any one of claims 1 to 11, characterised in that the principal channel and / or the supplementary channel transmit(s) information about the rank within a frame of the structure of the 20 supplementary channel, a sub-frame for which the beginning may be detected, so as to enable synchronisation of the supplementary channel at frame level by detecting the beginning of the next frame as a function of said synchronisation at sub-frame level and said information about the rank of said sub-frame.

13. Cellular radiotelephony signal according to claim 12, characterised in 25 that the principal channel and / or the supplementary channel also transmit(s) information about the mode of transmitting sub-frames on the supplementary channel, said synchronisation at frame level of the supplementary channel also depending on said information about the transmission mode.

14. Cellular radiotelephony signal according to any one of claim 1 to 13, 30 characterised in that the principal channel uses a spectrum spreading access (CDMA) technique and is preferably a UMTS link.

15. Cellular radiotelephony signal according to any one of claim 1 to 14, characterised in that said supplementary channel uses a multicarrier technique based on an OFDM modulation or an IOTA modulation.

16. Cellular radiotelephony signal according to any one of claims 1 to 15, 5 characterised in that the principal channel firstly transmits a notification prompting said terminal to perform said synchronisation of the supplementary channel at sub-frame level, to swap the terminal from the principal channel to the supplementary channel.

17. Cellular radiotelephony signal according to claim 16, characterised in 10 that said notification comprises information about said duration of the time interval ( $\Delta t$ ) and / or said determined time ( $t_0$ ) on the principal channel.

18. Cellular radiotelephony signal according to either of claims 16 and 17, characterised in that said notification is transmitted to a paging channel included in said principal channel.

15 19. Synchronisation process for a supplementary channel associated with a symmetric two-directional principal channel, said symmetric two-directional principal channel comprising a principal uplink channel and a principal downlink channel, particularly for low or medium speed transmission of signalling and control data and information;

20 said supplementary channel being assigned to the downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time / frequency space, and with a sub-frame type structure, characterised in that it comprises a step for synchronisation of the supplementary 25 channel at sub-frame level, itself including the following steps:

- detect a determined time ( $t_0$ ) on the principal channel;
- obtain the beginning of a sub-frame of the supplementary channel, by offsetting the detected time ( $t_0$ ) by a time interval with a determined duration not equal to zero ( $\Delta t$ ).

20. Process according to claim 19, characterised in that said duration of the time interval ( $\Delta t$ ) and / or said determined time ( $t_0$ ) on the principal channel is (are) fixed and known to said terminal.

21. Process according to claim 19, characterised in that said duration of the time interval ( $\Delta t$ ) and / or said determined time ( $t_0$ ) on the principal channel is (are) variable, and the principal channel and / or the supplementary channel transmit(s) information about said duration of the time interval ( $\Delta t$ ) and / or said time ( $t_0$ ).

22. Process according to any one of claims 19 to 21, characterised in that it includes a preliminary step in which a notification is transmitted through the principal channel prompting said terminal to do said synchronisation at sub-frame level of the supplementary channel, so as to swap the terminal from the principal channel to the supplementary channel.

23. Terminal of a cellular radiotelephony system, including means of transmitting a principal uplink channel, means of receiving a principal downlink channel, and means of receiving at least one supplementary channel,

    said principal uplink and said principal downlink forming a symmetric two-directional principal channel particularly for low or medium speed transmission of signalling and control data and information,

20    said supplementary channel being assigned to the downlink only, particularly for transmission of data at high speed, making use of a multicarrier technique for distribution of data in the time / frequency space, and with a sub-frame type structure,

    characterised in that it comprises means of synchronisation of the supplementary channel at sub-frame level, themselves including:

- means of detecting a determined time ( $t_0$ ) on the principal channel;
- means of obtaining the beginning of a sub-frame of the supplementary channel, by offsetting the detected time ( $t_0$ ) by a time interval with a determined duration not equal to zero ( $\Delta t$ ).

24. Base station of a cellular radiotelephony system, including means of receiving a principal uplink channel, means of transmitting a principal downlink channel, and means of transmitting at least one supplementary channel,  
said principal uplink channel and said principal downlink channel forming a  
5 symmetric two-directional principal channel particularly for low or medium speed  
transmission of signalling and control data and information,  
said supplementary channel being assigned to the downlink only, particularly for  
transmission of data at high speed, making use of a multicarrier technique for  
distribution of data in the time / frequency space, and with a sub-frame type  
10 structure,  
characterised in that it comprises means of offsetting the beginning of at least one  
sub-frame of the supplementary channel, by a time interval with a determined  
duration not equal to zero ( $\Delta t$ ) from a determined time ( $t_0$ ) on the principal  
channel, so as to enable synchronisation of the supplementary channel at sub-  
15 frame level, in a terminal, by detection of said determined time ( $t_0$ ), and adding  
said time interval ( $\Delta t$ ).